CLAIMS

What is claimed is:

1.   A method comprising:

providing image data; and

performing a Hough transform on the image data using a host processor and an operatively configured graphics processor.

2.   The method as recited in Claim 1, wherein the graphics processor is configured to count votes in a resulting Hough transform voting buffer.

3.   The method as recited in Claim 1, wherein the graphics processor is configured to convolve image values and provide corresponding results to the host processor.

4.   The method as recited in Claim 1, wherein the graphics processor performs an alpha-blending operation that selectively increments accumulators that correspond to parameter combinations that are likely associated with an observation.

5.   The method as recited in claim 1, wherein the graphics processor performs a histogram computation to find the maxima value in the Hough transform voting buffer.

6. An apparatus comprising:

a host processor configured to provide image data; and

a graphics processor operatively coupled to the host processor and configured to perform selected steps of a Hough transform algorithm on the image data in association with the host processor.

7. The apparatus as recited in Claim 6, further comprising a local memory operatively coupled to the graphics processor and wherein the graphics processor is configured to count votes in a resulting Hough transform voting buffer within the local memory.

8. The apparatus as recited in Claim 6, wherein the graphics processor is configured to convolve image values and provide corresponding results to the host processor.

9. The apparatus as recited in Claim 6, further comprising a local memory operatively coupled to the graphics processor and wherein the graphics processor performs an alpha-blending operation that selectively increments accumulators within the local memory that correspond to parameter combinations that are likely associated with an observation.

10. The apparatus as recited in claim 6, further comprising a local memory operatively coupled to the graphics processor and wherein

the graphics processor performs a histogram computation to find the maxima value in the Hough transform voting buffer within the local memory.

11. A computer-readable medium having computer-executable instructions for performing steps comprising:

providing image data; and

performing a Hough transform on the image data using a host processor and an operatively configured graphics processor.

12. The computer-readable medium as recited in Claim 11, having computer-executable instructions that cause the graphics processor to count votes in a resulting Hough transform voting buffer.

13. The computer-readable medium as recited in Claim 11, having computer-executable instructions that cause the graphics processor is to convolve image values and provide corresponding results to the host processor.

14. The computer-readable medium as recited in Claim 11, having computer-executable instructions that cause the graphics processor to perform an alpha-blending operation that selectively increments accumulators that correspond to parameter combinations that are likely associated with an observation.

15.   The computer-readable medium as recited in claim 11, having computer-executable instructions that cause the graphics processor to perform a histogram computation to find the maxima value in the Hough transform voting buffer.

16.   A method comprising:
causing dedicated graphics hardware to support a at least one of the following steps associated with a Hough transform algorithm:

quantizing a bounded portion of a parameter space that may contain a desired feature;

for each discrete quantized parameter combination, allocating an incrementable accumulator;

gathering observations that can be mapped into the parameter space;

for each observation, incrementing each of the accumulators that corresponds to parameter combinations that may have produced the observation; and

determining the maxima in a resulting quantized parameter array and the corresponding parameter combinations.